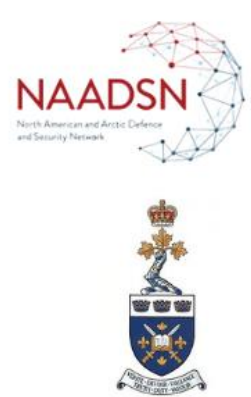


# EVENT REPORT



24 & 26 March 2021

## North American Arctic Forum

Prepared by Nancy Teeple, NAADSN 2020-21 Postdoctoral Fellow

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### North American Arctic Forum

24 & 26 March 2021

hosted by:

sponsored by: 

Norwich University

North American Arctic Defence and Security Network (NAADSN)

Center for Arctic Security & Resilience (CASR)

Royal Military College of Canada (RMC)

Collège militaire royal du Canada (CMR)



24 March 2021

#### Distinguished Speakers

26 March 2021



Lieutenant-General Alain Pelletier, RCAF  
Deputy Commander  
North American Aerospace Defense Command



Lieutenant General David A. Krumm, USAF  
Commander  
Alaskan Command || 11th AF || Alaska NORAD Region



# EVENT REPORT



## Forum Planning and Execution Team

Nancy Teeple, NAADSN Postdoctoral Fellow, Fulbright Canada Visiting Chair in Peace and War Studies at Norwich University, Adjunct Assistant Professor at Royal Military College of Canada  
Travis Morris, Professor of Criminology and Director of the Peace and War Center at Norwich University  
Shannon Nash, NAADSN Director of Operations and Postdoctoral Fellow at Trent University  
Troy Bouffard, Professor at the School of Management and Director of the Center for Arctic Security and Resilience at University of Alaska, Fairbanks

## Special Guests Featured at the Forum

Lieutenant-General (RCAF) Alain Pelletier, Deputy Commander of NORAD  
Lieutenant-General (USAF) David Krumm, Commander of Alaskan Command  
Dr. Mark Anarumo (Colonel), President of Norwich University  
His Excellency Jon Elvedal Frederickson, Ambassador of Norway to Canada  
Dr. Whitney Lackenbauer, Lead of the North American and Arctic Defence and Security Network

This event report provides a description of the North American Arctic Forum in two parts. Part I outlines the proceedings of the Forum, including the background and purpose of the event, followed by descriptions of each session – the panels, breakout room discussions, and simulation development exercise. Part II of this report provides a collection of reflection works authored by NAADSN graduate fellows who led Arctic theme discussion themes. Appendix I and II provide the Forum agenda and participant biographies, respectively.

The author would like to thank Norwich University, NAADSN, and Fulbright Canada for its incredible support and enthusiastic engagement in this event, where the development of new relationships anticipates generating cross-border knowledge and perspectives on North American Arctic defence and security issues. The author is particularly grateful to Shannon Nash, Troy Bouffard, and Travis Morris for their roles in the coordination and logistics that made the event function seamlessly. In addition, many thanks go out to the graduate fellows who led the thematic groups and provided valuable contributions to this report.



## Part I: Report on Proceedings

### Introduction

The Arctic has re-emerged as a critical region that poses challenges to the national interests of the United States and Canada. The impact of climate change on the Arctic environment has opened the region to increasing international activity with interests in the economic, commercial, navigation, and scientific research potential of the High North. This opening has effects on Arctic politics among states and peoples of the North, with implications for security and defence in the region. Increasing military activities by Arctic states and the emergence of new threats “in, to, through, and from” the region, has made the Arctic a high priority for Canada and the United States as binational continental partners.

The North American Arctic Forum explored the various dimensions of Arctic defence and security. This event brought together Arctic experts from Canadian and American academic and practitioner communities to outline each nation’s perspectives on the strategic requirements for the Arctic, including binational and bilateral cooperation and collaboration in the defence of North America.

The Forum built partnerships between academic institutions, research networks, and relevant commands (NORAD, USNORTHCOM, and Alaskan Command), while enhancing knowledge on responses to emerging challenges *in, through, to, from, and over* the High North. The Forum added value to the dialogue on North American Arctic defence and security by addressing both the strategic and operational levels of analysis, which informs the formulation of policy and strategy – relating ends, ways, and means. Both levels addressed the multiple domains of sea, air, land, space, and ISR, with an emphasis on the land operating environment. This forum is unique in emphasizing the indigenous element, highlighting the importance of drawing upon the knowledge, tradition, and capabilities of Northern peoples, who must be engaged and integrated as interoperable partners in defending the Arctic.

The Forum and this report represent the culmination of a project conducted under the Fulbright Canada exchange program at the Peace and War Center at Norwich University. The value of the Fulbright Canada-U.S. relationship is well-reflected in the themes of the Forum’s sessions, particularly the special relationship that Canada and the United States share as partners in North American security and defence.

### Purpose

The North American Arctic Forum represents a student engagement forum comprising workshops and presentations featuring Canadian and American academic experts, practitioners, and commanders. The intention of the event was to generate new knowledge and innovative ideas through critically addressing the rapidly changing Arctic in its multiple dimensions and increasing number of actors. The engagement with students encouraged critical thinking about assumptions and ways forward in this increasingly unpredictable geostrategic environment.

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The forum was co-hosted by Norwich University's Peace and War Center and the DND MINDs North American and Arctic Defence and Security Network (NAADSN), in cooperation with the University of Alaska Fairbanks Center for Arctic Security and Resilience (CASR), Royal Military College (RMC), et Collège militaire royal de Saint-Jean (CMR), and sponsored by Fulbright Canada.

## Description

This tripartite forum emphasized student engagement with commanders, practitioners, and academic experts. The format comprised three sessions over two days. Day 1 consisted of a keynote address and panel of experts, a workshop, and a simulation development exercise. Day 2 consisted of a keynote address and panel of experts, attendance at Arctic panel presentations at the Arctic Domain Awareness Center, followed by a simulation development exercise.

1) Panels: The panels of Day 1 and Day 2 consisted of commanders and experts describing the state of affairs of security and defence matters involving the North American Arctic. Day 1 addressed the strategic level of analysis hosting the Deputy Commander of NORAD as the keynote speaker. Day 2 addressed the operational level hosting the Commander of Alaskan Command as the keynote. (See Appendix I for the agenda with panelists.

2) Breakout groups addressing 6 themes of Arctic security concern:

- Political
- Security
- Economic
- Environmental
- Conflict
- Cooperation

3) Simulation development organized around the 6 themes. Day 1 involved addressing challenges at the strategic and operational levels and Day 2 involved creating a set of scenarios based on that particular theme.

## Discussion

Day 1: "Strategic Challenges Facing the North American Arctic" featured Lieutenant-General Alain Pelletier, Deputy Commander of NORAD, as a keynote speaker, followed by special comments by His Excellency, the Ambassador of Norway to Canada, Jon Elvedal Frederickson, and a recorded introduction by Dr. (Colonel) Mark Anarumo, President of Norwich University.

The keynote address and special comments presented the strategic challenges facing North America through the Arctic, emphasizing requirements for all domain awareness, information dominance, credible deterrence, joint agile capabilities across the AOR, and the ability to expand our power projection – all of these culminating in a Global Integrated concept with allies and partners. There was an emphasis on the need for a fact-based approach to Arctic policy decisionmaking to enhance stability in the North and cooperation among regional players. The importance of striking a balance between deterrence and reassurance was highlighted.

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The panelists, comprising experts from both the United States and Canada,<sup>1</sup> provided various perspectives on the strategic developments in the Arctic, considering key variables at multiple levels of analysis. These addressed the difference between soft and hard security threats in the Arctic, present and future threats, and distinguishing Arctic-specific threats from global, North American, and other regional threats. A First Image (leadership) assessment addressed how the Biden Administration is likely to generate more diplomatic and hybrid approaches to foreign relations in the Arctic involving all elements of national power, including U.S. alliances as force multipliers.

An emphasis on a fact-based approach considered which dimensions of the Arctic poses the most significant challenges. The avenue of approach is critical. There is a need for non-kinetic and strategic messaging options. Russia poses a challenge because it cannot bring up hard security issues in the Arctic Council. The Northern Chiefs of Defence Staff would be the best method to engage on military security matters.

The need to manage Canada-U.S. expectations was addressed. This discussion touched on the role of the Canadian Rangers and how the Canadian Forces operate in the Arctic. Information is often stovepiped by domain, which needs to be overcome. The challenge to achieve decision superiority involves how to include civilian agencies, which includes the role of civilians and volunteers in operations such as Search and Rescue. These matters concern how militaries organize themselves.

How we understand Arctic security is not just about exploring security in the last three years. Russia has been operating under the sea ice for a long time and U.S. exercises with Norway concerns Russia. In order to understand the situation, it is important to go back to the Cold War, rather than post-Crimea. It is important to look at the long-term impacts of our action and inaction, especially NATO expansion in the Baltics. The threat of new smaller yield warheads on submarine launched ballistic missiles carried by the new Columbia class submarines is problematic. Canada has two dyads in play: sovereignty and China being a politically sensitive issue. Human security as a focus of the Canadian government contrasts with traditional security requirements, as outlined in the Arctic Framework and *Strong, Secure, Engaged* – NORAD and Arctic modernization.

Day 2 of the Forum, “The Operating Environment: Challenges and Opportunities,” featured keynote speaker Lieutenant-General David Krumm, Commander of Alaskan Command, and a special live statement by Dr. Anarumo (Colonel), President of Norwich University. The discussion focused on the operating environment and explored the importance of integrating local knowledge to adapt Arctic military training and exercises to the challenges of the Northern landscape.

It was stated that the Arctic Circle is a “cold rush region” in which the United States, Canada, Russia, and China are scrambling to achieve strategic advantage. The Arctic is routinely described as an emerging frontier and many Polar nations, along with a few that have no Arctic borders, are positioning for access to the region's rich resources. Through our shared insights on the Arctic strategic and operational domains – we will prepare future North American leaders to cooperate and mitigate conflicts in the North American Arctic.

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<sup>1</sup> Rebecca Pincus, Daniel Torweihe, Andrea Charron, Rob Huebert, and moderator James Fergusson.



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The United States and Canada is the first priority and the threats facing the homeland are no longer hypothetical – they are real and the reach of our adversaries is now global. It is going to get competitive in the Arctic and there are some important concerns going forward. Russia and China comprise the foremost competitors in U.S. national strategy and the Arctic region is important to both of those countries. Over the past decade or so, Russia has been focused on expanding its presence in the Arctic, strengthen its defenses, and increasing its military capacity in the region. Russia is very keenly focused on protecting its natural resources, in addition to upgrading air bases, radar stations outposts, and search and rescue stations, many of which – if not all – are used for dual military and civilian purposes. We have to get after the sorts of capabilities and capacities of some of our competitors. We need to field defensive and offensive capabilities in response. We must be concerned about Russia’s behaviour around the world – its refusal to honour international law, rules, and norms, its activities in Crimea, and things happening in Ukraine. This has implications for the Arctic with respect to Russia’s leadership – it is important that Russia’s presence in the region does not mean that it makes the rules.

It is perplexing that China proclaims itself a near-Arctic nation – Google maps makes that claim hard to believe. China’s interest in the Arctic is in the extensive shipping that will result as the sea ice continues to recede, and the phenomenal increase in revenue. China is looking at the Northern Sea Route (by Russia) and the Northwest Passage (by Canada). There are two compelling reasons for China to be invested in the Arctic: 1) the region is a long-term security interest for them, and 2) scientific research. We are concerned about China’s refusal to abide by international maritime law in the South China Sea, East China Sea, and the chain of islands where under false pretenses they challenge territorial integrity and expansion. We need to make sure that that sort of behavior is not repeated in the Arctic.

It is important to understand the Arctic region – that it is no longer just an impenetrable barrier, but an avenue of approach based upon today’s technology. We must provide the capabilities to defend the Arctic with our long-range radars with our aircraft, with our coordinated joint partners in both the navy and the army – 24/7 days a week, 365 days a year. When you talk about Alaska and the Arctic it is all about location, with the Aleutian Islands off to the far West - a geographical band that stretches across what will be probably some of the primary shipping routes coming from Asia going through the Arctic and over to Europe. We have different important strategic assets, including radar, designed to help us detect and track a ballistic missile threats primarily coming from North Korea. The Bering strait is in the West which will eventually link Pacific countries to those in the North with an increasingly ice-free Arctic Ocean.

The importance of Arctic infrastructure was highlighted, as Alaska comprises the largest state in the U.S. The lack of infrastructure impacts transportation and communication with associated operational problems. Partnership with friends for dual-use military-civilian communications will hopefully work to address challenges, utilizing the star-link network, in addition to the deepwater port project. Being able to operate in the extreme weather was addressed as a key operational issue requiring greater understanding, as the weather is unpredictable.

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The Canada-U.S. alliance was emphasized, as well as relationships with other co-Arctic nations, with an interest in increasing engagement and cooperation, exchanging the abilities and capabilities of partners. This includes joint cooperation on air and land operations with Canada, training and working together, including the ARCTIC EDGE exercise. This collaboration includes partnerships with Alaskan natives, who have been in the region for thousands of years, and no one knows the area better. U.S. forces work continuously and partner with them to understand the environment, to learn and grow, in order to defend the U.S. and the continent from those that might threaten it. The key is to propose new innovative solutions and different ways we can work together to be prepared and postured going forward in this strategic region.

The panelists<sup>2</sup> addressed the value of the Canadian Rangers in helping the CAF operate in the North. Their role was first addressed within the “in, to and through” framework. As part of the CAF, the Rangers comprise lightly equipped mobile forces in the remote isolated coastal regions of the Arctic, providing indigenous representation of Canada. There are a lot of misconceptions about what the Rangers do, or what they should do – the media often gets it wrong and some commentators skew the issue. The Rangers’ primary mission is related to threats “in” the Arctic. The Rangers’ role is not to serve as combat forces – the threat environment does not work this way and they are not trained or equipped to do so. Rather, the Rangers comprise a postmodern military force, since the activities that Rangers undertake in a range of capacities are similar to the ones that they undertake as civilians. This is born of their knowledge and continuous experiencing in the hostile and challenging Arctic environment.

For the Rangers, there is a lot less focus on warfighting and more focus on non-traditional missions, as they are often described as the “eyes and ears” of the military in the North. They apply their vital local and indigenous knowledge to enable safe, effective, and efficient operations. The Rangers are very successful, despite the fact that they are a very unorthodox military organization. They make multi-sectoral contributions and not always in obvious ways, and are force multipliers for southern units deploying into and operating in what southerners consider to be hostile environments. They also offer a persistent military presence as human sensors in a layered ecosystem of sensors. They also benefit the CAF, because that they mean that our military does not need to garrison, and they provide cost effective alternative.

Living in the region, the Rangers provide a firm sovereignty presence, they elect their own leadership, which is unique within the Canadian Forces and therefore represents an interesting form of stock government. In terms of the societal security sector, which is about the sustainability of communities through the preservation of things like traditional patterns of language, culture, and religion – thus, the Rangers contribute both directly and indirectly to cultural and indigenous resilience. As a ground capability they can respond to environmental threats and provide a benefit to environmental security by being lightly equipped and self-sufficient. It means that they have a very light environmental footprint compared to other military elements. One of the balances in any military planning at the operational or strategic level, of course, is economy of effort economy of resources to achieve a desired effect. One might think about the Rangers in terms of the

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<sup>2</sup> Whitney Lackenbauer, Peter Kikkert, Sam Alexander, Troy Bouffard, moderated by Magali Vullierme.

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“three S’s” – sovereignty, security, and stewardship. But first and foremost, they should be thought of in terms of resilience.

The conceptual challenge of achieving resilience considered the need for innovative ways to build from the bottom up: community resilience, indigenous resilience, and the sharing of traditional knowledge and practical traditional skills. These contribute to individual resilience. Infrastructure in the North benefits everyone. There is a need for sustained innovative investment at the community level involving the CAF and the Rangers towards the operationalization of resilience. This would provide a model for other nations in the region.

It is an understatement that there are unique operating challenges in the Arctic environment, but the military does not seem to believe this in practice. One of the problems is that forces get rotated out of Alaska and the knowledge learned is gone. There is a limited amount of training in the Arctic – about three years – and it is difficult to learn in such a short time. There is a role for special operations forces (SOF) in the Arctic. But SOF is not ready for the Arctic – it will fail (like Desert One all over again in the Arctic). Why does Alaska not have a force like the Canadian Rangers? It has taken generations to develop Arctic knowledge. In order to learn and know certain local things, we need access.

There is agreement that SOF is not ready to operate in the Arctic. It was proposed that one SOF unit should be based in the North to achieve a sustained level of knowledge in the North. But what roles it would fulfill is uncertain. A few suggestions included potentially responding to economic damage against Russia (consider the Aleutian campaign for lessons). Operational capabilities and responsibilities, in line with priorities, must be established. There is a need for political commitment and funding, which has been constrained. At this point we do not have military units with a defined Arctic mission.

## **Workshop: Arctic Themes**

The purpose of the workshop involved addressing a set of DND MINDS challenge questions with a six breakout groups each focusing on one of six Arctic themes: environmental, political, security, economic, cooperative, and conflict. Each group, comprised of officer cadets and civilian students from the military academies, was led by a NAADSN graduate fellow who moderated the discussion and provided guidance. An Arctic expert was also available in each room for additional consultation on the particular Arctic theme.

Part II of this report provides graduate fellow group leads’ reflections on their breakout group discussions. These reflections provide important data drawn from the discussion of the workshop groups, in addition to valuable insights into what they mean in terms of challenges and opportunities into the future. What is notable is how certain issues overlap between themes, such as resource development, environmental impact, resilient infrastructure, indigenous stakeholder engagement, and the role of Russia and China as actors in the political, economic, and security domains.



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**Table 1: Breakout Groups**

Group	Lead	Expert(s)
1. Environmental	Jackson Bellamy	Troy Bouffard
2. Political	Jill Barclay	P. Whitney Lackenbauer
3. Security	Kristen Csenkey	James Fergusson
4. Economic	Andrew Chater	Rebecca Pincus
5. Cooperative	Bianca Romagnoli	Sam Alexander Magali Vullierme
6. Conflict	Gabriella Gricius	Rob Huebert

## Simulation Development Exercise

The simulation development sessions on both days of the Forum comprised part of a series of simulation exercises involving cadets and students from Norwich University, RMC, and CMR, led by Drs Travis Morris, David Last, and Ian Parenteau. The purpose of the simulation sessions for Days 1 and 2 of the Forum was to address Arctic defence and security challenges at the strategic and operational levels and develop a set of potential scenarios requiring joint responses by the Canadian and American militaries, and other relevant government departments and agencies. Each simulation development exercise was preceded by instruction by Dr. David Last of RMC, prior to shifting to six breakout groups organized around the six themes – political, economic, security, environmental cooperation, and conflict. Each breakout group had a resident expert to facilitate discussion and provide consultation. The outcomes of the sessions provided a number of scenario ideas within one of the six themes to inform the simulation exercises to be continued with Norwich, RMC, and CMR in future months.

## Conclusion

The value of this Forum is multifold: it offered a unique opportunity for engagement between officer cadets with commanders and experts in Arctic security. The expertise brought to this event helps to inform the next generation of leaders in North American and Arctic security, including key roles played by NAADSN graduate fellows as mentors to students and cadets.

The proceedings and working groups highlighted the imperative of understanding the various threats in, to, through, and from the Arctic – from both natural and human actors at the state and non-state levels. Challenges and opportunities identified at the strategic and operational environment emphasized the importance of cooperation and collaboration with regional stakeholders – the U.S.-Canada alliance, other Arctic nations, and most importantly, indigenous northern peoples with generations of knowledge and experience operating in the High North. There is much value in taking lessons from the Canadian Rangers' role as force multipliers in the CAF, and potentially developing similar units in Alaska, or some other special forces capability informed through engagement with indigenous Arctic peoples.

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The joint character of cooperation involves coordination within the multiple domains – sea, air, land, space, cyber, and information (including cognitive). Non-traditional threats emerging alongside innovations in conventional and nuclear weapons technology include environmental impacts at the local level and the utilization of grey zone activities to create challenges below the threshold of conflict. These include potential challenges by adversaries’ manipulation of, or outright ignoring, international norms, rules, and laws of conduct, which could affect Arctic politics and security in the future.

The way forward involves enhancing understanding of the strategic and operational challenges in the Arctic at multiple levels and working to stay ahead threats and risks through strategic foresight assessments. In addition, understanding will be enhanced through experiencing the region’s extreme conditions first-hand, including how equipment designed for lower latitudes does not function optimally in the unpredictable Arctic conditions, creating operational, ISR, and communications challenges. Experiencing the Arctic also requires engaging with northern peoples and learning their culture and way of life – not to appropriate, but adopt capabilities and knowledge of the landscape through consent, inclusion, and respect. This will facilitate the adaptation of southern military forces for the unique conditions of the Arctic operating environment, while creating enduring and enriching partnerships. Indeed, one of the Forum’s key takeaways is that resilience – enhanced through adaptation, knowledge, and relationships – is the key to success in defending the North American Arctic.





## Part II: Reflections on Breakout Rooms

The following reports by NAADSN Graduate Fellows comprise reflections on five breakout rooms: political, environmental, security, economic, and conflict. These discussions addressed a number of DND MINDS challenge questions carefully selected by the graduate fellows to address the specific theme. These reports provide valuable outcomes and key takeaways of these discussions that inform knowledge about the particular dimension of the Arctic.

### Political Breakout Room

By Jill Barclay, NAADSN Policy and Research Coordinator

#### Introduction

In the political breakout room for the Norwich-NAADSN North American Forum, students were prompted to discuss policy, governance, and defence challenges facing the North American Arctic. To begin the discussion, we addressed adaptation as an approach to defence considering the ever-evolving political dimensions of the Arctic.

The Arctic is emerging as a theatre of growing competition. Climate change and technological advancements have resulted in an increasingly accessible Arctic. New actors are pursuing economic and military activities, some of which may pose a threat to Canadian security and sovereignty. *Strong, Secure, Engaged* recognizes that working cooperatively with allies and partners, including ongoing collaboration with Arctic states, will be essential for succeeding in a complex security environment.

Some of the increased activity in the Arctic has the potential to threaten Canada's sovereign interests, including activities outside of the traditional military realm such as increased growing foreign investment, tourism and scientific research. Increased accessibility and activity through the Northwest Passage is imposing additional pressures on Canada's search and rescue, emergency management, and monitoring and response capabilities.<sup>3</sup>

#### Discussion

1. What are the defence and security implications of an increasingly accessible Arctic and what is the role of national defence in managing these changes?

This question prompted discussion of the lack of presence and infrastructure in the Arctic, particularly in the Canadian Arctic. There are no ports in the Canadian Arctic that can accommodate military ships. Increasing

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<sup>3</sup> Department of National Defence, MINDS Policy Challenges 2021-2022, <https://www.canada.ca/en/department-national-defence/programs/minds/defence-policy-challenges.html>

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military presence was discussed as a means of demonstrating Canadian sovereignty and exercising deterrence against undesirable activities that would undermine interests in the North.

When considering the interests of Indigenous communities living in the Arctic, including the question of how military and non-military activities in the region can contribute to an improved standard of living for these communities, students recommended increased communications and cooperation with Northern Indigenous communities. Currently, the lack of communications infrastructure means that information is not instant, and communication is limited. Increased transparency, cooperation, and communication with Northerners will ensure their interests in the region are promoted and protected. This led to the question of national and foreign infrastructure investment.

2. While there is a need to invest in infrastructure in the Arctic, if we build more ports and transportation infrastructure, are we enabling a certain kind of foreign activity in the region that could undermine North American interests and increase national defence threats and risks?

The Arctic is fundamental to Canada's national identity and is home to many Canadians. Therefore, it is important to invest in the region, thus investing in the people who inhabit the North. The Arctic represents tremendous potential for Canada's future. Though much of the Canadian population resides in close proximity to the United States border, 30% of the world's untapped gas and 13% of the world's untapped oil remains within the Canadian Arctic boundary. As a result, there is a lot of foreign interest in the region, making it pertinent for Canada to increase its presence in the North and protect the resources that remain within our borders. As resources are depleted worldwide, the consumption of energy will only become more important moving forward. Similarly, the United States has much to gain from increasing and expanding their military presence in the Arctic to enable quicker responses to threats and risks within the U.S. Arctic, as one student pointed out. Climate change and the melting of permafrost in the Arctic presents an added layer of challenges when thinking of increasing this presence and building of military bases or other infrastructure. As such, there needs to be an adaptability to any of these projects moving forward. All of the students agreed that as Arctic waters become more accessible, it is necessary for North America to build a deep-water port in the Arctic.

3. Thinking of all the resources that we have "untapped" in the Arctic, what is the potential for conflict domestically? As we are going to rely on the Arctic more and more for resources, how can we enable Northerners to be a part of the decision-making when it comes to economic development in the Arctic?

While being active in the Arctic may cause conflict, being inactive in the Arctic is far more dangerous. We need to mitigate these risks by making decisions about them now rather than waiting for conflict to arise and retroactively responding. One student suggested that allowing some foreign direct investment may be a positive in this scenario as it could prompt increased decision-making power to local populations who will be directly impacted by such investments.

4. Thinking of foreign investment and interests in the Arctic, is there a way to engage partners who are otherwise considered adversaries in these conversations? What are the risks?

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It is apparent that Canada's foreign policy is focused more on investment than politics. NATO and Russia's relations in the Arctic thus far have been more positive than negative. However, one concern is that adversaries may make North America engage with them on the terms of their choosing. It's a risk to have adversaries set the terms of engagement. Is the Arctic a diversionary theatre? Could this be that Russia is simply baiting us to compete with them in an area where they already have assets of their own? In the case of China, for example, if their real goal is Taiwan or South Asia, it would be to their benefit to have North America investing resources into the Arctic, thus freeing up interest and opportunity in the South China Sea. Therefore, we need to be proportionate in our investments. While interest in the Arctic may be increasing, we must not hinder our abilities to act elsewhere as well. Students discussed the possibility that Russia, rather than trying to use the Arctic as a diversionary tactic, is instead simply trying to put pressure on Canada and project its influence and power. To them, the Arctic is simply another battlefield at which they need to be at the forefront, but it is not within Russia's strategic interest to cause conflict in the Arctic as it would destabilize its own Arctic sovereignty.

5. Great power competition has returned to the international system. China is a rising economic power and Russia has proven its willingness to test the international security environment. Compared to other regions in the world, where would you place the Arctic on a risk hierarchy?

The threat to the Arctic is relatively low, but the consequences are much higher than in other regions. Thinking about what strategic moves Russia or China potentially make in the area is important. We need to anticipate their ability to take advantage of our limited presence in the Arctic. One student asked if Russia or China were to take over a small Arctic island, for example, what kind of precedent does this set? North America needs to be proactive rather than reactive in these areas to minimize the opportunity for adversaries to take advantage of our limited presence and infrastructure in the Arctic. Another student pointed out that Russia and China's tactics go beyond physical threats to the Arctic. We also need to take into consideration China and Russia's current practices of engaging in grey zone warfare using disinformation and misinformation.

## Key Takeaways

- The Arctic is rich in oil and natural gas and Russia and China want to expand their economic capabilities in the Arctic. We need to ensure foreign direct investment doesn't threaten Canada and the United States' economic strength and partnership.
- The possibility of conflict in the Arctic is relatively low, but consequences are high due to the severe lack of infrastructure that exists in the North. Investment in developing infrastructure in the Arctic should be of high importance for North America.
- Russia and China pose different threats in different domains. The Russian threat in the Arctic is inherently a hard threat because of their large Arctic force, whereas China is a soft power threat through their economic infrastructure investments and interventions in the Arctic.
- There is a changing threat environment. We need to differentiate between threats. How we categorize threats (whether they are threats *to* the Arctic, *through* the Arctic, or *in* the Arctic) will determine how we come up with solutions.





## **Security Breakout Room: Hybrid (in)Security in the Arctic**

By Kristen Csenkey,<sup>4</sup> NAADSN Graduate Fellow

### **Purpose**

The purpose of this brief is to further the discussion on the changing threat environment in the North American Arctic. It is guided by the premise that Canada and the US face similar threats within the region. These threats are multidimensional and require cooperation with diverse actors to reduce the risk of increased conflicts in the Arctic.

The content of this brief builds off and highlights the discussions with select students from Norwich University, the Royal Military College of Canada (RMC), and Collège militaire royal du Canada de Saint-Jean (CMR). These discussions occurred in break-out groups and the author was tasked with facilitating the conversation around the theme of 'Security'. The event occurred on March 24, 2021 as part of the North American Arctic Forum, which was organized by Norwich University and NAADSN, in partnership with the RMC, CMR Saint-Jean, University of Alaska, Fairbanks Center of Arctic Security and Resilience (CASR), and Fulbright, Canada.

This brief aims to accomplish three main goals:

- 1) frame the changing threat environment in the Arctic in 5-10 years,
- 2) present the findings of the break-out group discussion as key concerns for Canada and the US within the context of continental defence, and
- 3) provide recommendations on how to overcome the challenges associated with hybrid threats in the Arctic.

### **Background: A Worst-Case Scenario in the 2020s**

I posed the following question to the group: *what will the Arctic look like in 5-10 years? What is the worst-case threat environment scenario for the region?* The consensus was that Canada and the US can expect a threat environment where emerging non-traditional (such as private and state-backed companies) and traditional actors (including Russia and China) engage in multiple domains of conflict. Cyber was framed as an increasingly important domain of interaction in the 2020s where actors interact and produce new challenge areas.

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<sup>4</sup> The author would like to thank the student participants from Norwich University, the Royal Military College of Canada (RMC) and Collège militaire royal du Canada de Saint-Jean (CMR), including: Callum Clougher, Renata de Daiva, Eli Drapeau-Bélanger, Nicholas Kowbel, Rebecca Reid, and Jacob Stricker for their contributions to the discussion. The author would also like to kindly thank Dr. Nancy Teeple for contributing her expertise to the break-out group discussions and for organizing this event.



## Discussion: Hybrid (in)Security

Future conflicts in the region have the potential to be hybrid in nature with a heavy emphasis on cyber. The current intersection of economic, environmental, and political threats may continue to impact the security of the region. This future security– or (in)security – environment is seen as the result of a current lack of cooperation and communication between actors and understanding threats.

This understanding of security threats reflects the concept of threats *through*, *to*, and *in* the Canadian Arctic, as explored by [Lackenbauer](#). Threats *through* the Arctic are largely external to the region and international in nature. These types of threats will pass by way of the region, but do not specifically target the Arctic. Threats *to* the Arctic are also external, but have a more direct impact on the region. An example could be an attack on an Arctic-specific critical infrastructure from a malicious foreign actor. Finally, threats *in* the Arctic originate in and impact the region. These types of threats could include environmental degradation in the Arctic and its economic impact on local communities.

Hybrid (in)security captures the perceptions of the types of threats *through*, *to*, and *in* the Canadian and American Arctic.

## Findings: Key Concerns

There are two key concerns that arise from this future worst-case scenario. Paired with diversity of potential threats *through*, *to*, and *in* the region, these key concerns are: the emphasis on cyber within hybrid conflicts and the lack of an encompassing Arctic-specific playbook to guide strategy.

Non-traditional and traditional actors, their actions, and intentions were discussed in the context of larger geopolitical tensions, regional environmental changes, and emerging economic issues. These intersecting factors and contexts were generally framed as a defining feature of the hybrid threat environment. The lack of formal regulations to prevent and address cyber attacks, especially on critical infrastructure, and the need for more cyber capabilities, was framed as a key concern.

## Recommendations

The following recommendations highlight the short- and medium-term goals that Canada and the US can work towards to reduce the risks associated with the imagined worst-case scenario and address threats *through*, *to*, and *in* the region.

1. **Invest in scientific research and education.** A focus on research and development (R&D) should have a dual purpose of meaningfully committing to understanding the potential threats and preventing them through avenues such as education. Education should focus on understanding the potential vulnerabilities of an increasingly interconnected critical infrastructure systems. This could include increasing awareness and preparedness among operators.

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2. **Focus on meaningful engagement with regional partners.** Canada-US efforts to engage with local populations and actors should continue, but these activities need to continue to improve and build new channels of cooperation. Future formal and informal channels of cooperation must contain consultations and the active participation of Indigenous peoples and Northern communities. Cooperative projects and activities should focus on civilian-led efforts, although joint military operations between Canada and the US were seen as a valuable engagement piece.
3. **Surveillance and monitoring activities** should expand to assess and address expanding challenge areas, including security, environmental issues, and economic activities. For example, the monitoring of sea ice and increased foreign and domestic ship activity, could help gather information in order to craft effective responses to potential future threats.

## Conclusion

The 2020s may see increased conflicts in the region as a result of numerous actors, motives, and activities occurring within multiple domains. In addition, an increase in cyber-related attacks, paired with the current perceived lack of understanding and preparedness, may result in an increase of threats *through, to, and in* the Arctic. The resulting hybrid (in)security should be addressed through cooperation with regional actors. The break-out group participants stressed the importance of cooperation between Canadian and American military, civilian, including Indigenous populations and Northern communities, and scientific communities, in order to address the diversity of threats. Threats *through, to, and in* the Arctic may have varying impact on the region, but the thresholds between them will blur in the future. This will make the need for cooperation through informal and formal channels increasingly important.

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## Conflict Breakout Room

By Gabriella Gricius, NAADS Graduate Fellow

One of the themes of the Breakout Groups within the North American Arctic Forum was *conflict*, a theme discussed by the opening panel in regard to hard and soft security problems, and the importance of context when asking questions of how and why conflict could occur in the Arctic. In the context of this broader discussion, the breakout group opened with a broad conversation of three main themes and debates going on within the Arctic. The first theme was the growing nature of great power competition. As the world is moving towards a renewal of great power competition, there is more space for state and non-state actors to exercise influence. With the China's rising economic status, and Russia's willingness to test the international security environment, the Arctic is becoming perceived by some as a theatre of competition. While actual military conflict is unlikely, the core difference of interests between these different powers will inevitably spill into the Arctic. However, importantly, this shift towards a great power competition is a long-term process. The second theme discussed was changes in the nature of conflict itself. With the resurgence of strategic competition between states, conflict itself is changing. Rather than conventional military conflict, grey warfare and hybrid warfare – warfare deliberately crafted to fall below the traditional threshold of armed conflict - are becoming more used. This type of warfare presents significant challenges in terms of deterrence, detection, attribution and response – making avoiding escalation difficult. With advances in technology, conflict is evolving towards the usage of artificial intelligence, cyberwarfare and information warfare amongst many others. The final theme was that of broadening security and the question of climate change. Climate change presents both immediate as well as long-term security challenges such as extreme weather events, natural disasters alongside acting as a macro-driver for other issues such as food, health, and environmental security. In short, the Arctic is a region where geopolitical competition, changes in the nature of warfare, and broadening security concerns meet.

In the context of the discussion on great power competition, discussing traditional alliances was an extremely prominent topic as well as how to handle non-Arctic players. Within the Arctic, some states are part of NATO, but others are not. With states like Finland and Sweden – who are not NATO members, the consequences of either state joining NATO are concerning. With Finland in particular, which shares a long border with Russia, there may be more drawbacks than benefits with any kind of move towards NATO. The conversation concluded by asking why change something that appears to be working. It is also, nonetheless, also important to take other non-Arctic countries into consideration such as China, who is already developing a relationship with Russia. While this marriage is one of convenience, paying attention to both countries' true intentions is critical. Looking forward, the discussion agreed that we must cooperate where we can and compete where we must, and encourage ongoing governance in the Arctic to uphold existing rule-based norms. Nonetheless, the Arctic is not exceptional – what happens in other parts of the world will not stay there. Thus, taking a broader perspective of security is important.

The discussion also engaged with the question of changes in the nature of conflict. While the United States and Canada have been outpaced by Russia in terms of investing in cyber warfare in the past, that is changing.

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The United States in particular is beginning to cooperate heavily with industry as well as academia to close that gap. In regard to stealing information, both China and Russia have stolen information while also attempting to win the heart and minds of other Arctic States such as Greenland and Iceland by attempting to invest in resources and infrastructure. Russia in particular has engaged in grey zone warfare, for example, by taking control of RAIPON, and by looking at potential political divisions in Greenland concerning independence from Denmark as well as Indigenous communities in Canada. The conversation also looked specifically at Chinese investment in Iceland as another hybrid threat. Most scholars agree that the probability of conflict in the Arctic is low. However, while land grabs won't occur, that does not mean that China will not attempt to gain economic footholds in countries such as Greenland and Iceland.

The true challenge, the conversation concluded, is understanding the true intent of Russia and China in the Arctic. Is Russia a defensive power that feels encircled and we need to address that insecurity or are they an aggressive power? Is China trying to participate or do they have other motives? If the problem is not aggression, then the United States and Canada should be trying to avoid miscommunication. The problem lies in differentiating between cooperation and aggression. Looking forward, the challenge is how we interpret the evidence. Do we give more weight to examples of cooperation or broader trends and intents of leadership? The participants agreed that military-to-military cooperation, taking a longer time horizon, and looking for the real intent of aggressor states in the Arctic is key.



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## Environmental Breakout Group

By Jackson Bellamy, NAADSN Graduate Fellow

### Introduction

In the environmental breakout group for the Norwich-NAADSN North American Arctic forum students were introduced to the environmental dimension of North American Arctic security and engaged in a discussion to better understand the environmental security concept. The students recognized climate change as the foremost issue facing the Arctic today but also discussed other important Arctic environmental issues such as contaminants, resource development, fuel and oil spills, alternative energy, and geoengineering. Increased marine access to the Arctic due to sea ice loss and implications of permafrost thaw for critical infrastructure were two major themes of the discussion. Students also realized the importance of bringing Indigenous and local perspectives to the table when considering environmental issues. A number of questions were posed to the participants which were based on DND's 2021 MINDS policy questions and modified in some instances to apply specifically to the Arctic environment.

### Questions

1. How is climate change expected to affect DND/CAF infrastructure, supply chains, and procurement; how can climate change resilience be built into CAF operations?

Climate change is already negatively affecting infrastructure across the north due to permafrost degradation. However, the severity of this challenge varies across the Arctic. Permafrost degradation will continue to be a challenge for constructing new infrastructure, maintaining existing infrastructure and securing supply chains. Since engineering solutions to these problems can be costly and do not necessarily apply in all cases, the feasibility of infrastructure projects in the north needs to be considered with the future impacts of permafrost degradation in mind. It could ultimately be very costly to maintain certain types of infrastructure in certain locations in the north. Constructing more infrastructure to create redundant transportation corridors in the Arctic will increase supply chain resilience to infrastructure failure. Some forms of transportation which are crucial to supply chains in some areas (e.g. ice roads) may not be viable in the future and economical alternatives to these modes of transportation will have to be considered.

Procurement should focus on changes at the operational level in the north. A longer ice-free season will place increased demands on watercraft on both marine and inland waterways. Ironically, sea ice loss due to climate change will likely mean an increased need for ice breaking and ice strengthened capabilities as shipping and



marine tourism activities continue to expand in the Arctic.<sup>5</sup> These capabilities will also be crucial for developing the Northwest Passage as a viable shipping route.<sup>6</sup>

- a. How can militaries increase climate change resilience in the Arctic more broadly (e.g. supply chains, infrastructure)?<sup>7</sup>

Since communities are facing many of the same challenges as militaries in the north, constructing dual use infrastructure would be beneficial and cost-effective for both the military and civilians. Communities can benefit from strategic investments by the government or military in infrastructure which will address the vulnerability of infrastructure and supply chains to climate change and allow communities to adapt and build resilience in the same way as the military.

2. How can civil - military co-operation shift to address new challenges such as climate change?<sup>8</sup>

Civilian and military departments need to co-operate as part of a whole of government approach to addressing climate change in the north. Many of the same challenges are being felt by both militaries and communities in the north. Working co-operatively versus independently would be an efficient way to make use of limited funds that are allocated to the Arctic by various departments each year. For the military especially, leveraging private investment for infrastructure and other projects which will benefit both the military and civilians is a good way to reduce costs associated with adaptation and resilience building in the Arctic and potentially frees up financial resources for other purposes.

3. How would efforts to “Green” defence positively impact the Arctic and its inhabitants?<sup>9</sup>

Efforts to “green” defence are important in an Arctic specific context. There is a legacy of negative environmental impacts from past military activities in the Arctic and minimizing future impacts will be a crucial part of demonstrating responsible environmental stewardship. Efforts to “green” defence can have positive impacts, especially at the local level, and can be integrated as part of resilience building and adaptation strategies. For example, alternative energy sources eliminate the possibility of diesel fuel spills while also increasing energy system resilience to diesel fuel supply chain interruptions, which are increasingly frequent due to climate change. More energy efficient buildings reduce energy demands and the costs of operating in the Arctic and carbon offsets should be explored where GHG mitigation is not yet possible (e.g. continued reliance of aircraft and other military equipment on fossil fuels). Military activity in the Arctic should also be

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<sup>5</sup> *The Maritime Executive*, “Melting Sea Ice Makes Canada More, Not Less Dependent on Ice Breakers,” 14 December 2020. <https://www.maritime-executive.com/editorials/melting-sea-ice-makes-canada-more-not-less-dependent-on-icebreakers>.

<sup>6</sup> *Maritime Executive*, “Melting Sea.”

<sup>7</sup> The first part of question one is a MINDS policy challenge question verbatim. Part a is additional and meant to build on the first part.

<sup>8</sup> Question two is a modified MINDS policy challenge question to specifically refer to climate change.

<sup>9</sup> The author created question three to reflect “greening” defence priorities outlined in the MINDS policy challenge questions in an Arctic specific context.



mindful not to further adversely impact the integrity of important subsistence species and ecosystems already being impacted by climate change.

4. What events (other than conflict) might defence forces be required to respond to ensure security in a changing Arctic environment?<sup>10</sup>

It is expected that militaries will be increasingly called upon to respond to a range of events other than conflict in a changing Arctic that are both directly and indirectly a result of climate change. Natural disasters are increasing in severity and frequency due to climate change and evacuations of remote communities can be especially demanding. Climate change is also resulting in infrastructure failure and supply chain interruptions which can cause emergencies in communities such as fuel spills and power outages. Increased access to the Arctic will also likely mean increased search and rescue incidents, criminal activity and man-made disasters such as oil spills.

5. How structurally equipped is the Arctic Council to address implications of an increasingly accessible Arctic? In what ways will the forum need to adapt and expand its mandate and membership in light of climate implications?<sup>11</sup>

The Arctic Council will continue to demonstrate leadership on soft security issues, especially in the context of climate change, and foster peace and co-operation in the region. However, the environmental implications of increased military activity in the Arctic due to climate change, including direct environmental impacts of such activities and militarization related to resource development are issues that were identified as currently beyond the purview of the Arctic Council. Perhaps a separate dialogue should be initiated regarding these issues rather than try to integrate them into the Arctic Council's mandate.

It may be necessary for Arctic Council membership (or more likely observer status) to expand in the future to more adequately reflect the global nature of the climate change issue which is impacting the Arctic. Failure to address climate change and environmental issues could be a source of tension between states. GHG mitigation is a universally accepted form of climate action and currently does not carry with it the same uncertainty and potential for conflict as geoengineering which will likely have global consequences.

6. What scope exists for DND/CAF to engage in collective action with like-minded military organizations, such as NATO, to contribute to and enhance climate change mitigation efforts and build resilience?<sup>12</sup>

Militaries make up a large portion of GHG emissions for which governments are directly responsible. In Canada, DND is responsible for 48% of the federal government's emissions, far and away the largest of any

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<sup>10</sup> The fourth question is a generalized version of a MINDS policy challenge question meant to apply more specifically to the Arctic.

<sup>11</sup> MINDS policy challenge question verbatim.

<sup>12</sup> MINDS policy challenge question verbatim.

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department.<sup>13</sup> Strategies to reduce and offset these emissions will have the greatest impact through international co-operation. Efforts to mitigate GHG emissions are recognized by NATO as important for reducing the risk of conflict globally and serious mitigation by member states and the military organizations themselves will result in globally significant reductions. Co-operation between our trusted partners and through organizations such as NATO and NORAD could be important for building resilience in the Arctic for militaries as well as local communities. Resilience building investment in the Arctic by trusted partners also does not have the associated security risks as investments coming from competitors such as China.

## Conclusion

In the environmental breakout exercise, students recognized climate change as the largest force transforming the Arctic environment today, creating both challenges and opportunities, and also engaged with other important Arctic environmental security related issues. They examined these issues from a range of perspectives, including local and Indigenous perspectives and a whole of government lens, and generated a number of policy relevant responses. Overall, I was impressed with the students' ability to tackle these complex problems and incorporate a range of perspectives. Complex problem solving will be an important skill for these leaders of tomorrow whether it is applied in an environmental context or elsewhere.

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<sup>13</sup> Canadian House of Commons, OGGO Committee Report, <https://www.ourcommons.ca/DocumentViewer/en/42-1/OGGO/report-18/page-123>



## North American Arctic Forum: The Economic Perspective

By Cadet Lydia R. Brown, Norwich University

Prepared as a Policy Brief for NAADSN on March 24, 2021

During the North American Forum, students from Norwich University, the Royal Military College of Canada, and the Royal Military College Saint-Jean were divided into groups based on a variety of topics with a focus on the Arctic region. The purpose of this brief is to summarize the economic perspective of our discussions about the Arctic and its relations to Russia as well as China. There is an ample amount of uncertainty in the Arctic at the moment, which contains 90 billion barrels of oil and mines of minerals. As the oil industry continues to decline, China has shown interest in the Arctic region when it comes to its natural resources and spacial opportunities for infrastructure-related plans.

In order to reach the Arctic more efficiently, we discussed that China is in the process of establishing the Polar Silk Road, a route that connects Asia to Europe and expands on the current Belt and Road Initiative. The Polar Silk Road not only shortens travel time by seven to ten days, but it also avoids hazardous routes that cross the Suez Canal and Bab al-Mandab Strait where vessels have been previously lost at sea.

In addition, as China continues to refer to itself as a “near-Arctic state,” and the country has reached out to Indigenous communities. This allows for China to further its investments with potential stakeholders and establish lines of communication with the Arctic states. A total of six Indigenous communities have permanent participation status under the Arctic Council, including the Aleut International Association, Arctic Athabaskan Council, Gwich'in International Council, Inuit Circumpolar Council, Russian Association of Indigenous Peoples of the North, and Saami Council. Without Indigenous stakeholders, China will find it difficult to become more involved with shaping Arctic geopolitics and reach its financial objectives that will help establish the Polar Silk Road in the first place.

There are approximately one million Indigenous people, or nine percent of the total population who reside in the Arctic. This includes more than forty different ethnic groups. As industries continue to rapidly expand throughout the Arctic region, the cultural practices and traditional livelihoods of Indigenous communities may become disrupted in the future. These practices include reindeer herding and fishing. Fisheries are not only a crucial income for fishermen, but they also provide nutritional security for indigenous communities. Therefore, fishing remains a growing industry and an important part of Arctic governance.

In terms of security, we discussed that the Canadian Rangers are a key element under Canadian Arctic participation. The reason for this fact is that both can be optimized to provide security when threatening scenarios arise. As part of the Canadian Armed Forces Reserves, the Canadian Rangers often work in the remote, coastal, and isolated parts of Canada. They provide lightly-equipped mobile forces to support national security and public safety operations within Canada’s borders. Canadian Rangers and Reserve units may also collaborate with the United States Armed Forces in the future, especially those of which are stationed in Alaska or along the Canada-United States border.



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In conclusion, although the region has been overlooked in the past when it comes to economics, the Arctic will be one of the world’s most important economic regions in the future. Therefore, it has increasingly become a focal point, especially for the Nordic countries. This inevitable uprise of economic growth will necessitate collaboration between industry, governments, and military operators in multiple different countries. These countries include the United States, Russia, China, Denmark, Norway, Sweden, Finland, Iceland, and Greenland. Working with military personnel and Indigenous communities will only benefit the important decisions that must be made to protect, supply, and continue the trail of economic growth for the Arctic’s future.



## Appendix I: Agenda for The North American Arctic Forum

Hosted by Norwich University and the North American and Arctic Defence and Security Network (NAADSN)

In partnership with the University of Alaska, Fairbanks Center for Arctic Security and Resilience (CASR), Royal Military College of Canada (RMC), Collège militaire royal de Saint-Jean (CMR), and Fulbright Canada.



### Day 1: March 24, 2021

#### Session I: Strategic Challenges Facing the North American Arctic

1100-1230 (All times presented in Eastern Standard Time, EST)

#### **Brief Introduction**

Dr. N. Teeple (NAADSN, Royal Military College of Canada)

Dr. Travis Morris (Norwich University Peace and War Center)

#### **Statement by Colonel Mark Anarumo, President of Norwich University**

#### **Keynote**

Lieutenant-General Alain Pelletier, Deputy Commander of NORAD

Q&A

#### **Address**

His Excellency Jon Elvedal Frederickson, Ambassador of Norway to Canada

#### **Panel Presentations**

Moderator – Dr. James Fergusson (Co-Director CDSS, University of Manitoba)

Dr. Rebecca Pincus (US Naval War College)

Daniel Torweihe (USNORTHCOM)

Dr. Andrea Charron (Director CDSS, University of Manitoba)

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Dr. Rob Huebert (University of Calgary)  
Q&A

**Health Break**  
1230-1245 EST

**Session II: Workshop**  
1245-1345 EST

## **Six Breakout Groups ~ Six Themes**

- Environmental
- Political
- Security
- Economic
- Cooperative
- Conflict

**Health Break**  
1345-1400 EST

**Session III: Arctic Simulation Exercise Part 1**  
1400-1520 EST

## **Six Scenarios ~ Six Groups**

Directors:

Dr. David Last (Royal Military College of Canada)  
Dr. Ian Parenteau (Collège militaire royal de Saint-Jean)  
Dr. Travis Morris (Norwich University)

**Summary of Day's Events**  
1520-1530 EST

## **Day 2: March 26, 2021**

**Session I: *The Operating Environment: Challenges and Opportunities***  
10:30-12:00 EST

**Brief Introduction**  
Dr. N. Teeple  
Dr. Travis Morris

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## **President's Statement**

Colonel Mark Anarumo, President of Norwich University

## **Keynote**

Lieutenant-General David Krumm, Commander, Alaskan Command  
Q&A

## **Panel Presentations**

Moderator - Dr. Magali Vullierme (Trent University)  
Dr. P. Whitney Lackenbauer (NAADSN Lead, Canada Research Chair Trent University)  
Dr. Peter Kikkert (NAADSN, St Francis Xavier University)  
Professor Troy Bouffard (NAADSN, UAF - Director CASR)  
Professor Sam Alexander, MBA (UAF)  
Q&A

## **Session II: ACCUSARS II Panels**

1200-1350 EST

### **Panel Topics:**

- Arctic residents of Alaska and Western Canada ~ the local and regional levels
- Maritime operations and environmental change ~ threats and risks

## **Health Break**

1350-1400 EST

## **Session III: Arctic Simulation Exercise Part 2**

1400-1520 EST

## **Six Scenarios ~ Six Groups**

Directors:

Dr. David Last (Royal Military College of Canada)  
Dr. Ian Parenteau (Collège militaire royal de Saint-Jean)  
Dr. Travis Morris (Norwich University)

## **Summary of Day's Events and Final Remarks**

1520-1530 EST

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## Appendix II: Biographies

### Keynote Speakers:

**Wednesday, 24 March 22, 2021**

**Lieutenant-General Alain Pelletier, RCAF, Deputy Commander of the North American Aerospace Defense Command (NORAD)**



LtGen Pelletier was the Deputy Commander Continental US NORAD Region based at Tyndall AFB, Florida. He is a distinguished graduate of the United States Air Force Air War College where he received a Master of Strategic Studies. He is also a graduate of the Canadian Fighter Weapons Instructor Course (FWIC) and has over 3,000 hours of flying time, of which over 2,500 hours are in the CF-18. His interest in running and physical health had him nominated as the Canadian Forces patron for the sport of running in 2010 and appointed as Commander of Joint Task Force Nijmegen in 2014.

**Friday, 26 March 22, 2021**

**Lieutenant General David A. Krumm, USAF, Commander of Alaskan Command, Eleventh Air Force, Alaska NORAD Region**



LtGen Krumm is the senior military officer in Alaska, responsible for the integration of all military activities in the Alaskan joint operations area, synchronizing the activities of more than 21,000 active-duty and reserve



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forces from all services. As Commander of the Alaskan Region of the North American Aerospace Defense Command, Lt. Gen. Krumm directs operations to ensure effective surveillance, monitoring and defense of the region's airspace. He is also responsible for the planning and execution of all homeland defense operations within the area of responsibility, including security and civil support actions. Lt. Gen. Krumm also commands Eleventh Air Force, overseeing the training and readiness of five wings and Air Force installations located in Alaska, Hawaii, and Guam.

## Event Host:

**24th President of Norwich University Mark C. Anarumo, PhD, Colonel, USAF (Ret)**



Dr. Mark Anarumo assumed the presidency on June 1, 2020 amid a global pandemic and significant civil unrest. His top three priorities for his first year are to lead the Norwich community through the necessary changes inherent with the COVID-19 pandemic to ensure the health and safety of the campus community; to address academic, operational and financial priorities of Norwich in its third century of service to the nation and the world; and to learn the Norwich culture to preserve the 200-year-old tradition of educating citizen-soldiers to build and defend the republic.

Dr. Anarumo enlisted in the U.S. Army in 1987, completed his Bachelor of Science degree via the GI Bill, then spent 26 years as an Air Force officer. He entered the Air Force in 1994 as the Distinguished Graduate of Air Force Reserve Officers' Training Corps at Rutgers University. He later earned a Master of Arts in Criminal Justice in 1999 and a PhD in Criminal Justice in 2005, both from Rutgers University. He also completed a postdoctoral fellowship through the National Security Fellow Program at Harvard University's John F. Kennedy School of Government in 2012.

Dr. Anarumo's previous position was Director and Permanent Professor for the Center for Character and Leadership Development, U.S. Air Force Academy, Colorado. In this capacity, he oversaw delivery of leadership, honor, and character education programs to a Cadet Wing of more than 4,000 officer candidates, advised honor education programs and execution of the Cadet Honor Code, hosted several large forums per year, including the annual National Character and Leadership Symposium, and conducted leading-edge research, instruction and assessment for advancing the 21st century profession of arms.

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Before accepting his Air Force Academy professorship, then-Colonel Anarumo was Vice Commander of the 39th Air Base Wing at Incirlik Air Base, Turkey, where he was responsible for approximately 5,000 U.S. military, civilian and contractor personnel and the combat readiness of U.S. Air Force units at Incirlik and four geographically separated units in Turkey. In addition to Turkey he has lived and worked extensively overseas including Iraq, Afghanistan, Saudi Arabia, Kuwait, Kyrgyzstan, and Korea.

Dr. Anarumo brings deep experience in the highest levels of organizational leadership, collaborative and transformational leadership in complex environments, donor relations, coalition-building, leadership in shared governance structures, delivery of innovative faculty and staff development programs, strategic planning, and fiscal management. He has taught and published widely on political violence, criminal justice, leadership, and character development.

President Anarumo lives in Woodbury Hall in Northfield with his family and several dogs.

## Special Guest:

**His Excellency Jon Elvedal Fredriksen, Ambassador of Norway to Canada.**



Before becoming Norway's ambassador to Canada, Jon Elvedal Fredriksen was a diplomatic advisor to the Prime Minister of Norway. He has previously been Norway's Ambassador to Ukraine and Consul General of Norway in Murmansk, Russia, and has extensive experience with Arctic affairs and security policy. Mr. Fredriksen is a graduate of the University of Tromsø, Norway in Russian studies, world literature and structural linguistics. He conducted additional studies in Stuttgart, Germany and trained as an officer with the Engineer Corps of the Norwegian Army.

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## Panelists: (alphabetically)

### Sam Alexander



Sam Alexander is a board member at Gwich'in Council International. Sam grew up in Fort Yukon, Alaska where his father was the traditional chief of the Gwichyaa Gwich'in Tribe of Northern Alaska. He spent much of his childhood exploring the Yukon Flats and the Northeastern Brooks Range, living the traditional Gwich'in lifestyle as was taught to him by the elders of his tribe.

Sam graduated from the United States Military Academy and spent ten years as a US Army officer, leaving as a Major in the US Army Special Forces (Green Berets). Following his time in the Army, Sam graduated from the Tuck School of Business at Dartmouth, he became the co-founder and CEO of Latitude six-six, where he takes people on incredible expeditions to showcase his home. In addition to guiding, Sam is a full time faculty member at the University of Alaska Fairbanks in the Homeland Security and Emergency Management Program.

### Troy Bouffard



Troy J. Bouffard, MSG (Ret.) U.S. Army, has a BA in Political Science, and MA in Arctic Policy. He is currently working on a PhD with a focus on Russian Arctic Defense strategy and international law. He is the director of the [UAF Center for Arctic Security and Resilience \(CASR\)](#). As a defense contractor, he is co-PI of the DOD Arctic Defense and Security Orientation program with USNORTHCOM and ALCOM started seven years ago. Within the UAF Homeland Security and Emergency Management program, Mr. Bouffard's portfolio includes development and delivery of an Arctic Security graduate concentration and certificate. Troy is a network coordinator for the North American and Arctic Defence and Security Network (NAADSN) and a non-resident Research Fellow with the Centre for Defence and Security Studies (CDSS) at the University of Manitoba. He has

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co/authored numerous articles, most recently with the Canadian Global Affairs Institute, Vanguard magazine, and the Canadian Naval Review. Among his other academic activities, he recently served as a contracted supervisor and chief editor for a NATO Arctic research project. Other activities include delegate experience with the Arctic Council, panel and conference presentations, and conduct of many inter/national Arctic events.

## Andrew Chater



Andrew Chater is a postdoctoral fellow with the North American and Arctic Defence and Security Network (NAADSN) at Trent University. He also is an assistant professor (limited term) in political science at Brescia University College in London, Ontario and a fellow at Polar Research and Policy Initiative in London, England. He was the 2019 Fulbright Visiting Research Chair in Arctic Studies at the University of Seattle in Washington. He completed his doctorate at the University of Western Ontario and was previously a graduate resident at the Rotman Institute of Philosophy. He holds a master's degree from the University of Waterloo. His research interests include Arctic governance, Canadian foreign policy and communication. His publications have appeared in such publications as *International Journal* and *Strategic Analysis*. Outside of academic life, Andrew plays music and has taught guitar in Iqaluit, Nunavut, as part of Iqaluit Music Camp.

## Andrea Charron



Dr. Andrea Charron is Network Co-Lead for NAADSN, the Director of the Centre for Defence and Security Studies (CDSS), and Associate Professor in Political Studies at the University of Manitoba. She has written extensively on Arctic security and continental defence issues, and regularly testifies on these subjects to parliamentary committees. She also lectures frequently at Canadian Forces College. Her recent articles and book chapters include "The Solidification of the Arctic Sovereignty Meme: Assessing Harper's Arctic Foreign Policy"; "Beyond NORAD and Modernization to North American Defence Evolution"; "Russian National Interests and the Arctic: Foreign Policy Implications for Canada" in *Canadian Foreign Policy in a Unipolar World*; and "Canada, the Arctic and NORAD: Status Quo or New Ball Game?"

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## James Fergusson



Dr. James Fergusson is a Professor in the Department of Political Studies, and Deputy Director of the Centre for Defence and Security Studies. He teaches a range of courses in the fields of international relations, strategic studies, Canada-US defence relations, and Canadian Foreign and Defence Policy. His recent publications include Andrea Charron and James Fergusson. *From NORAD to NOR[A]D: The Future of North American Defence Cooperation*. Calgary: Canadian Global Affairs Institute. May, 2018; Andrea Charron and James Fergusson. *Canada and Defence Against Help: The Wrong Theory for the Wrong Country at the Wrong Time*. Canadian Defence. Eds. Thomas Juneau and Phillipe Lagasse. (Andrea Charron and James Fergusson. *Beyond NORAD and the Modernization of North American Defence*. Canadian Global Affairs Institute. May, 2017. Andrea Charron and James Fergusson. *Left of Bang: NORAD's Maritime Warning Mission (2014)*, and *NORAD in Perpetuity*. Winnipeg: Centre for Defence and Security Studies. 2016. *Perceptions of Muslim Faith, Ethno-Cultural Community Based and Student Organizations in Countering Domestic Terrorism in Canada*, with Kawser Ahmed; "Ballistic Missile Defence: NATO's European Phased Adaptive Approach" *Atlantisch Perspectief*. 4: 2013; "The Right Debate: Airpower, the Future of War, Canada's Strategic Interests and the F-35 Decision." *Canadian Foreign Policy Journal*, Winter 2012; and *Canada and Ballistic Missile Defence 1954-2009: Déjà vu all over again*, Canadian War Museum Military History Series. Vancouver: University of British Columbia Press, 2010.

In addition to his academic publications, Dr Fergusson has been commissioned to write several reports for the Department of National Defence and the Department of Foreign Affairs. He lectures to a wide range of military audiences, including the Canadian Forces Barker College. Dr. Fergusson has testified on several occasions to the Standing Committee on Foreign Affairs and International Trade, the Standing Committee on National Defence, most recently on North Korea and Canadian Defence, and the Senate Standing Committee on National Security on missile defence. He recently completed a ten year appointment to the Defence Science Advisory Board, and a six year position as Honorary Colonel of the Canadian Forces School of Aerospace Studies. He is currently the Honorary Colonel of 2 Canadian Air Division.



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## Karen Hinkle



Karen L. Hinkle completed her Ph.D. in physiology at the University of Michigan in Ann Arbor and her B.S. in animal physiology and neuroscience at UC San Diego.

She's had an active research program since her arrival at Norwich, mentoring over 25 undergraduate and high school students in her laboratory, publishing in peer-reviewed journals alongside undergraduate authors, presenting at national and regional conferences, and obtaining over \$200K in grant funds. Her work focuses on understanding "molecular switches," or phosphorylation sites, on proteins involved in normal development but also implicated in cancer. She and her students actively collaborate with Bryan Ballif, a professor at the University of Vermont.

## Rob Huebert



Dr. Rob Huebert is a network coordinator for NAADSN and Associate Professor of Political Science at the University of Calgary. Dr. Huebert is a leading Canadian commentator on Arctic security and defence issues in media, academic, and policy circles, and continues to monitor and analyze Arctic defence and international security trends, with a particular focus on strategic policy and military capabilities and how developments impact on Canadian Arctic security. His areas of research interests include: international relations, strategic studies, the Law of the Sea, maritime affairs, Canadian foreign and defence policy, and circumpolar relations. His books include *Canada and the Changing Arctic: Sovereignty, Security and Stewardship* (co-authored with Franklyn Griffiths and Lackenbauer, 2011) and *(Re)Conceptualizing Arctic Security: Selected Articles from the Journal of Military and Security Studies* (co-edited with Lackenbauer and Ryan Dean, 2017).

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## Peter Kikkert



Dr. Peter Kikkert is a NAADSN network Coordinator, the Irving Shipbuilding Chair in Arctic Policy in the Brian Mulroney Institute of Government, and Assistant Professor in the Public Policy and Governance program at St. Francis Xavier University. Kikkert’s research focuses on safety, security, sovereignty, and governance issues in the polar regions. He has published on the evolution of international law in the Arctic and Antarctic, the Canadian-American defence relationship in the North, the evolution of Arctic transportation, and histories of rural and isolated communities. He has also written on the historic and contemporary role of the Canadian Armed Forces in the North and leadership within the Canadian Rangers. His current research program – supported by an Early Career Faculty Grant from the Marine Environmental Observation Prediction and Response Network and a SSHRC Insight Development Grant– explores how to strengthen community-based search and rescue and emergency response capabilities in the Western Arctic.

## Tara Kulkarni



Tara Kulkarni, Ph.D., P.E., joined the Norwich family in 2011. She was recently appointed to serve as the director of the Center for Global Resilience and Security at Norwich University. She teaches courses in fluid mechanics, environmental engineering, water and wastewater treatment, and hydrogeology. She has also taught the honors course on sustainability. She serves as an academic advisor to undergraduate civil and environmental engineering students, and for Tau Beta Pi, the engineering honor society.

Her 2014 paper on service-learning experiences in her classroom earned her the best professional paper award in the Zone 1 Regional Conference of the American Society of Engineering Education. The prize is awarded by the Xerox Corporation to the professional paper that focuses on bringing systemic approaches to increase the representation of women, underprivileged, and underrepresented groups in STEM education and careers.

Kulkarni earned her Ph.D. from Florida State University, where her research focused on physiologically based toxicokinetic modeling of environmental contaminants. She has previously worked in engineering positions at

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the Florida Department of Environmental Protection in the industrial wastewater, hazardous waste, and petroleum cleanup sections. She also worked as a research associate and sustainability manager for the Environmental Management Center in India, where she was involved in developing academic educational programs, corporate training, case study development, and developing and writing corporate sustainability policies.

## P. Whitney Lackenbauer



Dr. P. Whitney Lackenbauer is the Network Lead of [NAADSN](#), Canada Research Chair (Tier 1) in the Study of the Canadian North, and Professor at the School for the Study of Canada at Trent University. Dr. Lackenbauer is one of Canada's leading experts on Arctic security, history, and contemporary policy. He has received a long list of honours, awards, and grants for his scholarship. He has more than forty (co)authored or (co)edited books to his credit, including *Arctic Front: Defending Canada in the Far North* (winner of the 2009 Donner Prize – the award for the best public policy book by a Canadian), *A Commemorative History of Aboriginal People in the Canadian Military* (2010), *The Canadian Rangers: A Living History* (shortlisted for the 2014 J.W. Dafoe book prize), *China's Arctic Ambitions and What They Mean for Canada* (2018), and *Breaking the Ice Curtain? Russia, Canada, and Arctic Security in a Changing Circumpolar World* (2019). Dr. Lackenbauer was the 2017-18 Killam Visiting Scholar at the University of Calgary, a Fulbright Fellow at the School for Advanced International Studies, Johns Hopkins University in 2010, and a Canadian International Council Research Fellow at the Centre for International Governance Innovation in 2008-09. He co-led the Emerging Arctic Security Environment project through ArcticNet (2010-15) and was co-chair of the Munk School-Gordon Foundation Arctic Peoples and Security program (2011-13). He was 2018 Distinguished Visiting Professor at the Centre for National Security Studies (CNSS) at Canadian Forces College, and became Canada Research Chair (Tier 1) in the Study of the Canadian North at Trent University in July 2018.

Dr. Lackenbauer has a distinguished record of university and national service that has provided him with the requisite experience to coordinate and manage our collaborative network and engage with the Defence Team at many levels. In recognition of his work with Indigenous peoples and the military in Canada's North, he was made the Honorary Lieutenant-Colonel of the 1st Canadian Ranger Patrol Group in fall 2014 and was reappointed for a second three-year term in fall 2017. Lackenbauer also has extensive experience consulting to governments and non-government organizations on governance, sovereignty, security, and other policy issues.

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## David Last



Dr. David Last served for 30 years in the Canadian army, and is a graduate of the Royal Military College of Canada (BA, Politics and Economics), Carleton University (MA, International Affairs), and the London School of Economics (PhD, International Political Economy). He attended the US Army Command and General Staff College, Leavenworth, earning a Master of Military Arts and Science. His research interests focus on the management of violence, including peacekeeping, conflict resolution, and the use of force for international peace and security. His research interests are peacekeeping, conflict resolution, and international peace and security.

## William Travis Morris



Dr. Travis Morris teaches criminal justice in the School of Justice Studies and Sociology and is the Director of Norwich University's Peace and War Center. Dr. Morris holds a BA in criminology from Northern Illinois University, an MS in criminal justice from Eastern Kentucky University, and a Ph.D. from the University of Nebraska. He has published on the relationship between policing, peacekeeping, counterterrorism, and counter-insurgency and is the author of the recent book, *Dark Ideas: How Violent Jihadi and Neo-Nazi Ideologues Have Shaped Modern Terrorism*. He has conducted ethnographic interviews in Yemen and published on how crime intersects with formal and informal justice systems in a socio-cultural context. His research interests include violent extremist propaganda analysis, information warfare, and text network analysis. He is an active teacher in and out of the classroom and has created a series of recent grant-funded student learning trips in Eastern Europe and the Middle East.

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## Shannon Nash



Dr. Shannon Nash is the Postdoctoral Network Manager of the North American and Arctic Defence and Security Network (NAADSN)/Réseau sur la défense et la sécurité nord-américaines et arctiques (RDSNAA). This collaborative network provides timely, relevant, and reliable expert advice on North American and Arctic defence and security topics. In addition to supporting the Network Leads and Network Coordinators, Dr. Nash helps to coordinate the research program; supervise and mentor undergraduate and graduate research assistants; plan and organize conferences and workshops; assist with the compilation and writing of reports, and research products; and facilitates ongoing communication and coordination between NAADSN/RDSNAA members.

Dr. Nash is a post-doctoral research fellow at Trent University with NAADSN/RDSNAA and she has ongoing projects at the University of Waterloo examining education and training in national security and counter-terrorism in Canada and how the ‘terrorism’ label is informed and applied to a violent attack in Canada. She has recently completed a review of important studies and practical efforts to anticipate and reduce risk factors contributing to lasting traumatization of terrorist victims for a chapter in the forthcoming *Handbook of Terrorism Prevention and Preparedness*. She received her Ph.D. in History from the University of Toronto with a focus on 20<sup>th</sup> Century American History, Terrorism, and International Relations. She studies past and present terrorist threats and attacks as well as Canadian, American, and international defence, security and counterterrorism policies. Shannon’s doctoral thesis focused on the reality of al Qaeda espionage methodology and how the idea of a sleeper agent was perceived and adapted to fit the terrorist threat posed by al Qaeda from the 1990s onwards. She was a research affiliate with Public Safety Canada for which she produced a report on the foreign fighter threat and valuable international government initiatives.

## Ian Parenteau



Dr. Ian Parenteau is an assistant professor of political science at the Collège militaire royal de Saint-Jean (CMR), in Québec, Canada. He teaches undergraduate courses to young officers of the Canadian Armed Forces. He is also the Director of the International Office where he manages the Cadet Exchange Program, which



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offers the opportunity for officer cadets to spend one semester abroad in a partner military academy. He is also the secretary of the International Association of Military Academies (IAMA). Since 2010, he has had the chance to teach Professional Development symposiums to military members in Africa, Asia, Latin America and in Europe. He is a former Cavalry Officer and graduated from the Royal Military College of Canada (RMC).

## Rebecca Pincus



Dr. Rebecca Pincus is Assistant Professor in the Strategic and Operational Research Department (SOR) in the Center for Naval Warfare Studies at the US Naval War College, and a member of the Institute for Future Warfare Studies within SORD. She previously served as primary investigator (PI) at the US Coast Guard's Center for Arctic Study and Policy, located at the US Coast Guard Academy. Dr. Pincus' areas of expertise are the Arctic, Geopolitics, Russia, and Search and Rescue. Her recent work explores building a role for NATO in the Arctic.

Her current research addresses security concerns in the Arctic region, broadly defined as encompassing national security as well as human and environmental security concepts. She earned a B.S. in Foreign Service from Georgetown University, an M.S. in Environmental Law from Vermont Law School, and an M.S. and Ph.D. in Natural Resources from the University of Vermont. Rebecca is also a member of the New England Arctic Network. Her works include a chapter on the "Arctic Geopolitics of Fishing" in the Handbook of Geopolitics and Security in the Arctic, and two recent articles, including "Towards a New Arctic: Changing Strategic Geography in the GIUK Gap" and "Three-Way Power Dynamics in the Arctic."

## Nancy Teeple



Dr. Nancy Teeple is a Postdoctoral Fellow at the North American and Arctic Defence and Security Network, and is an Adjunct Assistant Professor and Research Associate at the Royal Military College of Canada. Dr. Teeple's research areas are nuclear strategy and deterrence, missile defence, arms control, and Arctic security.

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She holds a Ph.D. in Political Science from Simon Fraser University, an M.A. in War Studies from Royal Military College, a Masters in Library and Information Science from the University of Western Ontario, an M.A. in Ancient Studies from the University of Toronto, and a B.A. (Honours) in Classical Studies from the University of Ottawa. Dr. Teeple held the 2019-2020 Fulbright Canada Research Chair in Peace and War Studies at Norwich University in Vermont where she explored the causal processes in the formulation of U.S. Arctic security and defence policy, within the context of the Canada-U.S. continental defence relationship.

## Michael Thunberg



Michael Thunberg, PhD, is an assistant professor in the History and Political Science Department at Norwich University. His interest in the political process began at Northern Illinois University where he received his BS in political science. His expertise in American political institutions and the policy process grew at West Virginia University where he received his Master of Arts and Ph.D. While at West Virginia University, he began his research on the American president's ability to shape the policy process, especially with the use of executive orders. In the classroom, Professor Thunberg teaches new students the political process in his introduction to American government course and teaches advanced courses in the presidency, bureaucracy, and public policy.

## Daniel Torweihe



Mr. Dan Torweihe works in the NORAD-NORTHCOM Campaign Planning and Initiatives Division. He is an Arctic Subject Matter Expert. He is responsible for Arctic Strategy and Policy matters. Additionally, Dan is responsible for the USNORTHCOM content of the Arctic Defense and Security Orientation (ADSO) course. He is the NORAD-NORTHCOM lead for the Arctic Collaborative Workshop. He is also the NORAD-NORTHCOM lead for ICEX and the J5 lead for Exercise ARCTIC EDGE. He was the primary author of the 2017 USNORTHCOM Strategic Estimate for the Arctic and the 2018 USNORTHCOM Homeland Defense Mission Analysis for the Arctic Region. He was also the primary USNORTHCOM author of the 2019 Department of Defense Arctic Strategy and a key architect of the Arctic Wargame in the 2019 National Defense Authorization Act. Mr. Torweihe helps prepare the USNORTHCOM Commander for Senate as well as House Armed Services Committees testimony for Arctic matters.

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Mr. Torweihe is a former USAF Thunderbird and retired as a Colonel from the US Air Force in 2009 after over 26 of service, primarily as an F-16 pilot with four commands. He was the first J53 division chief.

## Magali Vullierme



Magali Vullierme, PhD in political science, is a post-doctoral researcher in the North American and Arctic Defence and Security Network (NAADSN, Trent University) and a member of the Arctic GDR (CNRS, France). She is also an associate researcher at the Observatory for Arctic Policy and Security (OPSA, University of Ottawa), the Network for Strategic Analysis (Queen's University), the CEARC (Université Paris-Saclay, UVSQ) and the Observatoire de l'Arctique (directed by the Foundation for Strategic Research on behalf of the French Ministry of the Armed Forces). From 2018 to 2020, she was affiliated to the Institute for Strategic Studies (IRSEM, France) where she works on security impacts of permafrost thaw within the European project [Nunataryuk](#) (No.773421, EU Horizon 2020).

Her research aims to better understand the (inter)relationships between, on the one hand, the indigenous and local populations of the Arctic regions, and, on the other hand, multi-scalar security issues (collaboration with the Armed Forces, risks linked to climate change, health security). She has led several fields in the Arctic, notably in Nunavik and Nunavut, with Canadian Rangers patrols, in Greenland, and in Eastern Siberia – in Yakutsk and in the Bulunsky region for [Nunataryuk](#) (Republic of Sakha-Yakutia, Russian Federation).

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## NAADSN Graduate Fellows:

### Jill Barclay



Jill Barclay is the Policy and Research Coordinator at the North American and Arctic Defence and Security Network (NAADSN). She received her Masters of Global Governance from the Balsillie School of International Affairs and her Honours BA in International Development from the University of Guelph. During her Masters, Jill focused her Major Research Paper on climate-altering technologies in the Canadian Arctic, examining the potential for using surface albedo modification, a form of solar radiation management (SRM), to increase the reflectivity of Arctic sea ice. This project also examined the accompanying policies and frameworks that could be used for its governance and the treaties and laws that would be implicated in its use.

Her works produced with NAADSN include: “Geoengineering in the Canadian Arctic: Governance Challenges”; “The Impacts of Climate Change on North American Defence and Security” (with Jayde Lavoie, Carly MacArthur, and Maria Nallim); “Improving the Canadian Armed Forces’ Recruitment and Retention of Indigenous People: Best Practices from the New Zealand Defence Force” (with Jayde Lavoie); and “Climate Change, Security, & Military Preparedness in North America” (with Jayde Lavoie, Carly MacArthur, and Maria Nallim).

### Jackson Bellamy



Jackson Bellamy is a graduate fellow at the North American and Arctic Defence and Security Network (NAADSN). He graduated from Trent University in 2018 with a B.Sc. (Hons) in Environmental and Resource Science. Jackson completed a Master of Bioenvironmental Monitoring and Assessment (M.BEMA) in August 2020 also from Trent University. Jackson’s current research focusses on the foreign and domestic policy implications of climate and environmental change in the Arctic. He has written several research papers which

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are published on the NAADSN website including Climate Change Disinformation and Polarization in Canadian Society, Alternative Energy in the Canadian North, and Lessons Learned from COVID-19: Insights for Climate Change Mitigation. Most recently, Jackson summarized a chapter for an upcoming book to be released as a policy brief, “Understanding the Recent History of Energy Security in the Arctic” by Dr. Petra Dolata.

## Kristen Csenkey



Kristen Csenkey is a PhD Candidate at the Balsillie School of International Affairs, Waterloo, Canada. Her doctoral research focuses on cyber governance and the management of innovation in Canada. Kristen holds a Department of National Defence Mobilizing Insights in Defence and Security (MINDS) Targeted Engagement Grant to examine emerging technologies with military applications. She holds fellowship positions with the Defence and Security Foresight Group (DSFG), the North American and Arctic Defence and Security Network (NAADSN), and the Canadian Global Affairs Institute (CGAI). Kristen was the 2020 Women in Defence and Security (WiDS) Fellow at CGAI and is currently a Women in International Security (WIIS) Canada Emerging Thought Leader in Digital Security.

## Gabriella Gricius



Gabriella Gricius is a Ph.D. Political Science student, Graduate Teaching Assistant, and InTERFEWS Trainee at Colorado State University and a Graduate Teaching Fellow at the North American and Arctic Defence and Security Network (NAADSN). She received her Master’s degree in International Security from the University of Groningen in 2019 and Bachelors in International Relations and German language from Boston University in 2015. Her interests are focused on the Arctic region, particularly as it concerns Russian policy and the risk of securitizing the region. She is also a freelance journalist and has published in Foreign Policy, Bear Market Brief, CSIS, Responsible Statecraft, Global Security Review, and Riddle Russia as well as the academic journals The

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Asian Journal of Peacebuilding, Sicherheit und Frieden, the Kyiv-Mohyla Law & Politics Journal, and the Canadian Naval Review.

## Bianca Romagnoli



Bianca Romagnoli is a graduate fellow at NAADSN and a PhD candidate in the anthropology department at the University of California, Los Angeles. Bianca’s research is an ethnographic study on the 1<sup>st</sup> Canadian Ranger Patrol Group and her research examines the relationship between Rangers and Ranger Instructors. Working alongside the members at 1CRPG, Bianca examines how traditional Indigenous skills get intertwined with military practice throughout the north. Thinking through questions of militarization, humanitarianism, politicization, and bureaucratization, Bianca’s research examines how the Canadian Rangers have become a principal apparatus to satisfy arctic frontier ambitions. Her dissertation aims to address the effects of the increase financial support, bureaucratic oversight and visibility 1CRPG has undergone and the lived experiences of the local (predominantly Indigenous) Canadian Rangers and the posted (southern) regular force CAF members. To address this, her dissertation asks: how is 1CRPG’s position within the arctic landscape seen as culturally, socially and financially critical to arctic community prosperity? 2) How does the large scale presence of Rangers throughout the north normalize militarization in these Indigenous communities? How does “bushcraft” and “traditional skills” get conscripted into military practice? 3) What impact does the increased bureaucratic and administrative oversight of the unit, and its personnel, have on Rangers?



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## Support Staff:

### Nicole Greenwood



Nicole Greenwood serves Norwich University's research centers of excellence, including the Center for Cybersecurity and Forensics Education and Research, the Peace & War Center, and the Center for Global Resilience and Security (CGRS). She manages internal administrative functions and serves as a point of contact for publicity, logistics, and flagship events and programming, including the NU Military Writers' Symposium and the William E. Colby Award. Greenwood has a strong background in the luxury hospitality industry and most recently spent time at a biotech startup in Boston, Massachusetts, focusing on event coordination and administrative support. She has a Master of Science in hospitality business management from Florida International University and a Bachelor of Arts in history from Washington State University.